

Claims

1. A multi-layer display (1) for displaying overlapping images comprising
- a light source (2),
 - a first translucent image screen (3), whereby the first image screen (3) overlaps with and is placed substantially parallel with the light source (2), arranged for displaying a first image (8), having a first appearance, e.g. at least one of a colour, grey tone and a pattern, and wherein the first screen (3) is capable of displaying the first images (8) in one of a transparent state, a normal appearance state and an occluded state,
 - a second translucent image screen (4), whereby the second image screen (4) is placed spatially separated along a viewing axis (14) perpendicular to the light source and placed substantially parallel to and overlapping with the first image screen (3), arranged for displaying a second image(9), having a second appearance, e.g. at least one of a colour, grey tone and a pattern, wherein the second screen (4) is capable of displaying the second image (9) in one of a transparent state, a normal appearance state and an occluded state,
- characterised in that
- the first image screen (3) is controllable to alternate at least part of the first image (8) between transparent state and a normal appearance state and the second image screen (4) is controllable to synchronously with the first image screen (3) alternate at least part of the second image (8) between an occluded state and a normal appearance state and wherein the normal appearance state of the first image(8) occurs simultaneously with the occluded state of the second image (9) and the transparent state of the first image (8) occurs simultaneously with the normal appearance state of the second image (9).

2. The multi-layer display (1) according to claim 1, wherein the first image screen (3) is controllable, while displaying the first image in the normal appearance state, to occlude at least part of the first image screen (3), the at least part of the first image screen (3) not belonging to the first image (8) in the normal appearance state.
3. The multi-layer display (1) according to claim 1 or 2, wherein the second image screen (4) is controllable, while displaying the second image in the normal appearance state, to occlude at least part of the second image screen (4), the at least part of the second image screen (4) not belonging to the second image (9) in the normal appearance state.
4. The multi-layer display (1) according to claim 1, wherein the first and second image screen (4) are arranged to synchronously with the first image screen (3) alternate only the overlapping part (10) of the first and second images (8, 9), as viewed from the viewpoint (13) to the light source (2).
5. The multi-layer display (1) according to any of the preceding claims, further comprising an at least one intermediate image screen (15), placed between the first and the second image screens (3, 4), wherein the at least one intermediate image screen (15) is controllable for displaying a third image (16), which overlaps at least in part with the first image (8) on the first image screen (3), and which is overlapped by at least in part by the image on the second image screen (4).
6. The multi-layer display (1) according to claim 5, wherein the third image (16) is displayable in an occluded state simultaneously with the first image (8) in a normal appearance state and the second image (8) in an

occluded state, and wherein the third image (16) is displayable in a normal appearance state simultaneously with the first image (8) in a transparent state and the second image (8) in an occluded state, and wherein the third image (16) is displayable in a transparent state simultaneously with the first image (8) in a transparent state and the second image (8) in a normal appearance state and wherein the simultaneous states of the first second and third images (8, 9, 16) are alterable synchronously.

7. A method for displaying coloured images on a multi-layer display (1),
- 10 • the multi-layer display (1) having a light source (2), a first translucent image screen (3), whereby the first image screen (3) overlaps with and is placed substantially parallel with the light source (2), arranged for displaying a first image (8), having a first appearance, e.g. at least one of a colour, grey tone and a pattern, and
- 15 wherein the first screen (3) is capable of displaying the first images (8) in one of a transparent state, a normal appearance state and an occluded state, and a second translucent image screen (4), whereby the second image screen (4) is placed spatially separated along a viewing axis (14) perpendicular to the light source and placed
- 20 substantially parallel to and overlapping with the first image screen (3), arranged for displaying a second image(9), having a second appearance, e.g. at least one of a colour, grey tone and a pattern, wherein the second screen (4) is capable of displaying the second image (9) in one of a transparent state, a normal appearance state
- 25 and an occluded state,

the method comprising

alternating at least part of the first image (8) between a transparent state and a normal appearance state and synchronously alternating at least part of the second image (8) between an occluded state and a

30 normal appearance state and wherein the normal appearance state of

the first image(8) occurs simultaneously with the occluded state of the second image (9) and the transparent state of the first image (8) occurs simultaneously with the normal appearance state of the second image (9).

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8. The method according claim 7, further comprising
- occluding at least part of the first image screen (3) not belonging to the first image (8), when the first image (8) is displayed in the normal appearance state.

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9. The method according claim 7 or 8, further comprising
- occluding at least part of the second image screen (4) not belonging to the second image (9), when the second image (9) is displayed in the normal appearance state.

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10. The method according to claim 7, further comprising
- synchronously alternating in the first and second image screen (4) only the overlapping part of the first and second images (8, 9), as viewable from the viewpoint (13).

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11. The method according to any of the preceding claims 7 – 10 , further comprising
- displaying a third image (16) on an at least one intermediate image screen (15), placed between the first and the second image screens (3, 4), whereby the third image (16) overlaps at least in part with the first image (8) on the first image screen (3), and which is overlapped by at least in part by the image (9) on the second image screen (4).

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12. The method according to claim 11, further comprising
- displaying the third image (16) in an occluded state simultaneously with the first image (8) in a normal appearance state and the second image (8) in an occluded state,
 - displaying the third image (16) in a normal appearance state simultaneously with the first image (8) in a transparent state and the second image (8) in an occluded state,
 - displaying the third image (16) in a transparent state simultaneously with the first image (8) in a transparent state and the second image (8) in a normal appearance state and wherein the simultaneous states of the first, second and third images (8, 9, 16) are alterable synchronously.